Abstract

Introduction: The equilibrium between supply and demand for red blood cells is increasing unpredictably in many countries. Donor availability is being altered by present lifestyle and increasingly rigid eligibility criteria. The demand for blood is increasing due to aging population. An understanding of trends in blood and its product usage profile and current usage can help predict future trends in demand and help to put efforts to reduce use in particular areas. This will also assist in understanding clinical demand, planning resource allocation and inventory management in the blood bank.

Aim: To study the pattern of blood and blood component utilization in a tertiary care Hospital.

Materials and Methods: This retrospective study was conducted in Blood Bank in the Department of Transfusion medicine and Immunohematology, CMC and hospital over a period of six months, distributed over a year. All the requests coming to blood bank for blood and its components during the selected months were reviewed. Information regarding patient's demographic details, diagnosis and indication for transfusion, type of request (Routine or emergency), blood and its products transfused or returned were collected. Month wise blood and its products utilization patterns were analysed. CT ratio, Transfusion index and Transfusion probability were also calculated. Statistics related to wastage of blood and its components were also reviewed.

Results: Total 20,399 requests came to our blood bank in six months. A total of 10,364 patients' utilized total 32,608 units of blood and its components. Total 14,195 units of packed

red cells, 5062 units of FFP, 10,118 units of platelets, 2751 units of cryoprecipitate and 482 units of cryosupernatant were utilized. November had maximum number of requests and utilization. Most of the requests for blood were from the inpatients (wards). Most of the blood was requested and utilized in age group of 21-30 years. Most of FFP units were requested and utilized in age group of 31-40 years. Most of platelet units were requested and utilized in age group of 51-60 years. Cryoprecipitate and cryosupernatant were maximally requested and utilized in age group of 21-30 years. In our study, requests for male patients were more and they also utilized more blood and components than females. Most of the blood and its components were used for diagnosis neoplasm according to ICD 10 code classification. Patients in the division of medicine utilized most blood. Although the division of surgery requested most of the blood, on an average, they utilized only 1/3rd of the requested product. Among the medical specialties, Haematology utilized most of the blood and components. Overall anaemia was the most common indication for red cell utilization. In surgical group Spine surgery had a maximum CT ratio. Neurosurgery and Hand Surgery had the lowest transfusion index in overall specialities. Hand Surgery and spine surgery had a lowest transfusion probability. Overall utilization rate in our study was 59.8%.

Conclusion: This retrospective study contributes the information on blood components usage in our tertiary care hospital. It displays the trend of utilization of blood and its components and is applicable for quality management of transfusion practice, cost analysis and to recruit scheme for local and regional blood donation programs. Regular review of blood component usage is very important to estimate the blood utilization pattern in any hospital. Profile of blood utilization will act as indicator for quality management of blood bank

Abbreviations

Key to Abbreviations

AABB - American association of blood bank

APTT - Activated Partial Thromboplastin time

ATLS - Advanced trauma life support

APML - Acute promeylocytic leukaemia

AML - Acute Myeloid leukaemia

ALL - Acute lymphoblastic leukaemia

BP - Bank plasma

CMCH - Christian medical college and Hospital

CVTS - Cardiovascular and Thoracic Surgery

Cryoppt.- Cryoprecipitate

Cryos. – Cryosupernatant

CT ratio - Crossmatch Transfusion ratio

DGHS - Directorate General of Health science

DIC - Disseminated intravascular haemolysis

FFP - Fresh Frozen Plasma

HIV - Human Immunodeficiency virus

HPB - Hepatitis B virus

LDRC -Leukodepleted red cell

MSBOS – Maximum surgical Blood order schedule

OPD - Outpatient Department

PCV - Packed cell volume

PC -Packed red cell

PPH – Post -partum Haemorrhage

Plt - Platelet

PRBC - Packed red blood cell

RBC – Red Blood Cell

RCC – Red cell concentrate

SDP - Single Donor Platelet

TI - Transfusion Index

T% - Transfusion Probability

THR - Total Hip replacement

TKR -Total Knee replacement

WB - Whole Blood